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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NGUYEN, KIMBINH T	

ART UNIT	PAPER NUMBER
2671	

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/990,085	MECH, RADOMIR	
	Examiner	Art Unit	
	Kimbinh T. Nguyen	2671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *25-29* is/are allowed.

6)☒ Claim(s) *20-24* is/are rejected.

7)☒ Claim(s) *1-19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to amendment filed 09/21/05.

2. Claims 1-29 are pending in the application.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-3, 5, and 11-20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 7,

10, 12 and 13 of copending Application No. 09/991,526. Although the conflicting claims are not identical, they are not patentably distinct from each other because the applicant's claims have a one to one correspondence in limitations to the above claims found in Application No. 09/991,526.

Referring to claim 1, both this claim and claims 1 and 2 of Application No. 09/991,526 contain a method for rendering a scene comprising measuring a travel distance through a gaseous object, converting the gaseous object distance to a color component and blending the color component of the gaseous object with a color component of a non-gaseous object. This application does not refer to an alpha channel because the claims in this case are more general.

Referring to claim 2, the remarks presented above with respect to claim 1 apply equally to this claim. Although the other case does not refer to a linear distance, this is obvious in that determining a distance between objects is generally considered in a straight line.

Referring to claim 3, both this claim and claim 3 of Application No. 09/991,526 provide where the travel distance is measured by calculating the depth between the front and back faces of the gaseous object.

Referring to claim 5, both this claim and claim 7 of Application No. 09/991,526 provide for computer-executable instructions.

Referring to claim 11, both this claim and claim 12 of Application No. 09/991,526 provide where the graphical display system is a flight simulator.

Referring to claim 12, both this claim and claim 13 of Application No. 09/991,526

provide where the graphical display system is a game.

Referring to claim 13, both this claim and claim 10 of Application No. 09/991,526 provide for a display unit.

Referring to claim 14, the remarks presented above with respect to claim 1 apply equally to this claim.

Referring to claim 15, the remarks presented above with respect to claim 3 apply equally to this claim.

Referring to claim 16, the remarks presented above with respect to claim 13 apply equally to this claim.

Referring to claim 17, the remarks presented above with respect to claim 5 apply equally to this claim.

Referring to claim 18, the remarks presented above with respect to claim 1 apply equally to this claim.

Referring to claim 19, the remarks presented above with respect to claim 3 apply equally to this claim.

Referring to claim 20, the remarks presented above with respect to claim 1 apply equally to this claim.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 2, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brothers et al. (6,417,862).

Claim 1, Brothers et al. discloses a method for rendering a visual scene (to produce display colors; col. 1, lines 19-20) comprising measuring a travel distance through a gaseous object (calculates an approximate value of the fog function which corresponds to the distance z; col. 2, lines 6-10; the distance z represents the distance from the viewer to the object; col. 3, lines 6-7), converting the gaseous object distance to a color component (the interpolation circuitry receives a distance z and coupled to send a value of a fog function F to the color blending ; col. 3, lines 12-13); Brothers does not directly disclose converting the distance z to the color component; however, Brothers teaches using interpolating circuitry to interpolate (convert) the distance z to the color component which depends on variable distance z, for example if the object was distant, then the fog function (distance z value) might be equal to one and the display color would equal the fog color. At the other extreme, if the object was close, the fog function might be equal to zero and the display color would equal the true color (red, green and blue) and at the distances in between the two extremes, the fog function determines the blending of the true color and the fog color; see col. 3, lines 1-30). Alternatively, the fog function F may vary from 0 to infinitive, when the fog function F

(distance z) is zero, the fog color would convert to a color component to display the true color (col. 3, lines 26-29). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the fog function (distance z) to simulate the fogging phenomenon as the distance to the object varies taught by Brothers, because when the fog function equals to zero and the display color would equal the true color which including red, green and blue, it means the distance z (the distance between viewer and object) has been converted to the true color (col. 3, lines 27-28); and Brothers discloses blending the color component of the fog object (fog color) with a color of non-fog object (true color) to produce a pixel in the visual scene (and outputs the display color; col. 3, lines 13-15).

Claim 2, Brothers discloses where the travel distances are linear distances (the distance variable z may vary from 0 to infinitive; col. 3, line 66 through col. 4, line 5; fig. 2A).

Claim 4, Brothers discloses where converting the gaseous object distances employs a linear gaseous model (linear interpolation; col. 6, lines 10-32).

7. Claims 3, 5, 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brothers et al. (6,417,862) in view of Deering (6,762,760).

Claim 3, Brothers does not teach a depth of the gaseous object between front and back faces of the gaseous object from a reference point; however, Deering teaches the cylindrical radial distance z is computed from a point on cylinder 206 (related to front and back faces) to the viewpoint 202; col. 12, lines 27-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the

calculating of radial distance taught Deering into the interpolating fog function and z distance of Brothers for producing display color, because the amount of fogging applied to objects remains unchanged through these rotation since the amount of fogging applied is dependent on the cylindrical radial distance that remains unchanged (col. 4, lines 43-46).

Claim 5, the rationale provided in the rejection of claim 1 is incorporated herein. In addition, Deering discloses one or more computer-readable media comprising computer-executable instructions (col. 17, lines 59-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the computer-readable taught Deering into the interpolating fog function and z distance of Brothers for producing display color, because it would receive graphics data from any of various sources (col. 7, lines 38-42).

Claim 6, Brothers discloses where the blending of a color component from the gaseous object with the color component of a non-gaseous object generates a pixel with visual realism (display color; col. 1, lines 27-29; col. 3, lines 14-15).

Claim 7, Deering discloses assigning a constant density to the gaseous object (col. 17, lines 56-58).

Claim 8, Deering teaches a gaseous phenomena generator to determine a distance travel through a gaseous phenomenon from a reference point based on a viewpoint (col. 12, lines 27-44); Deering does not teach convert the distance traveled to an attenuation factor; however, Brothers teaches this feature (col. 3, lines 23-66) a blending unit to blend a pixel color to render a final pixel color (outputs the display

color). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the interpolating taught by Brothers into the Deering's system for converting the distance z to an attenuation factor F, because using attenuation factor, it would increase the accuracy of the interpolation to produce the color display. 9col. 7, lines 22-23).

Claim 9, Deering discloses where the gas generator module is implemented as a software program layer operating in conjunction with computer hardware (col. 5, line 57 through col. 7, line 52).

Claim 10, Deering discloses where the graphical display system is an interactive graphics machine (col. 5, line 57 through col. 7, line 52).

8. Claims 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brothers et al. (6,417,862) in view of Deering (6,762,760) and further in view of Hollis et al. (6,580,430).

Claims 11-13, Hollis discloses where the graphical display system might be a flight simulator (col. 3, line 21);the graphical display system is a game system (col. 6, line 49).; a display unit configured to display the final color to the user (col. 5, line 52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the flight simulator taught by Hollis into the Deering's system for converting the distance z to an attenuation factor F, because it would improve fog simulation (abstract).

Claim 14, the rationale provided in the rejection of claim 8 is incorporated herein. In addition, Deering discloses using the distance as a variable (or attenuation

factor), to determine the fog value (col. 13, lines 10-18, lines 47-62; col. 15, lines 48-53).

Claim 15, the remarks presented with respect to claim 3, above, apply equally to this claim.

Claim 16, the remarks presented with respect to claim 13, above, apply equally to this claim.

Claim 17, the remarks presented with respect to claim 5, above, apply equally to this claim.

Claim 18, the remarks presented with respect to claim 1, above, apply equally to this claim.

Claim 19, the remarks presented with respect to claim 3, above, apply equally to this claim.

Allowable Subject Matter

9. Claims 20-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claims 25-29 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not teach determine a travel distance value through at least one fog object from a reference mint to a pixel. wherein the fog object is bounded by a front face and a back face; convert the travel distance value to a fog factor value; and

determine a pixel color value for the pixel based on the fog factor value, whereby the scene can be rendered using the determined pixel color, wherein the instructions configured to render images having atmospheric effect by causing one or more processors to determine a travel distance value comprise instructions configured to cause le one or more processors to initialize the pixel color value; determine a back distance value from the reference point to the back face of the fog object and adding the back distance value t6 a color baser value; and determine a front distance value from the reference into the front face of the fog object and subtracting the front distance value from the color buffer values wherein the final color buffer value represents a scaled travel distance through the fog object.

Response to Arguments

11. Applicant's arguments with respect to claims 1, 5, 8, 14, 17 and 18 have been considered but are persuasive, because Brother teaches using interpolating circuitry to interpolate (convert) the distance z to the color component which depends on variable distance z, for example if the object was distant, then the fog function (distance z value) might be equal to one and the display color would equal the fog color. At the other extreme, if the object was close, the fog function might be equal to zero and the display color would equal the true color (red, green and blue) and at the distances in between the two extremes, the fog function determines the blending of the true color and the fog color; see col. 3, lines 1-30). Alternatively, the fog function F may vary from 0 to infinitive, when the fog function F (distance z) is zero, the fog color would convert to a

color component to display the true color (col. 3, lines 26-29). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the fog function (distance z) to simulate the fogging phenomenon as the distance to the object varies taught by Brothers, because when the fog function equals to zero and the display color would equal the true color which including red, green and blue, it means the distance z (the distance between viewer and object) has been converted to the true color (col. 3, lines 27-28).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimbinh T. Nguyen whose telephone number is (571) 272-7644. The examiner can normally be reached on Monday to Thursday from 7:00 AM to 4:30 PM. The examiner can also be reached on alternate Friday from 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached at (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 8, 2005

KIMBINH T. NGUYEN
PRIMARY EXAMINER